Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
WTB and OET Seek Comment on	)	WT Docket No. 24-240
NextNav Petition for Rulemaking	)	RM-11989

JOINT COMMENTS OF RAIN ALLIANCE INC. & AIM INC.

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RAIN Alliance Inc. and AIM Inc. (collectively, the "RFID Commenters") submit these comments in response to the Public Notice released by the Wireless Telecommunications Bureau and the Office of Engineering and Technology (collectively, the "Commission") on August 6, 2024 in the above-captioned docket,[1] and in strong opposition to the petition for rulemaking filed by NextNav Inc. on April 16, 2024 ("Petition").[2] In its Petition, NextNav asks the Commission to wholly transform the 902-928 MHz band ("Lower 900 MHz Band") for NextNav's sole benefit and without regard to scores of other incumbent users of the Lower 900 MHz Band or to NextNav's existing spectrum rights in the band. More specifically, NextNav asks the Commission to reconfigure the Lower 900 MHz Band, creating paired uplink and downlink spectrum for its sole use; to allow NextNav to "swap" its largely unused Multilateration Location and Monitoring Service (M-LMS) licenses for new flexible-use licenses covering approximately 50% more geography than its existing licenses; and to permit terrestrial mobile and/or fixed operations under these new licenses in accordance with the Commission's much higher-power Part 27 rules, and without being subject to the interference mitigation requirements that apply to NextNav's existing M-LMS licenses and that have allowed a variety of services to flourish in the Lower 900 MHz Band.

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[1] *See Wireless Telecommunications Bureau and Office of Engineering and Technology Seek Comment on NextNav Petition for Rulemaking*, WT Docket No. 24-240, Public Notice, DA 24-776 (rel. Aug. 6, 2024) ("Public Notice").

[2] *See Petition for Rulemaking of NextNav Inc.*, WT Docket No. 24-240 (Apr. 16, 2024) ("NextNav Petition").

Of particular concern to the RFID Commenters, NextNav's proposed reconfiguration of the Lower 900 MHz Band would result in a debilitating amount of harmful interference to the enormous number of RAIN RFID operations deployed in the United States, and thereby, significantly harm the resiliency and efficiency of America's supply chains, businesses, and government agencies. The RFID Commenters therefore strongly urge the Commission to summarily dismiss NextNav's Petition and instead allow the myriad incumbent operations in the Lower 900 MHz Band to continue to flourish under the existing band plan and service and technical rules.

I. INTRODUCTION

RAIN Alliance Inc. is a U.S.-based, global non-profit organization, representing over 150 corporate members that develop and deploy RAIN RFID technology solutions addressing applications across many vertical markets.

AIM Inc. is a leading global alliance representing stakeholders across the RFID, barcoding, smart devices, and all other automatic identification and data capture ("AIDC") technologies sectors. With over 50 years of experience, AIM supports industries and organizations involved in the development, implementation, and utilization of these technologies. AIM plays a crucial role in fostering standardization, community engagement, advocacy, and education to drive adoption and interoperability.

RAIN RFID (also known as passive UHF RFID) is a wireless technology that enables businesses and consumers to identify, locate, authenticate, and engage billions of items connected to the Internet of Things. In simple terms, RAIN RFID is a passive, battery-free wireless technology that uses a reader to read and write a tagged item, manage the data, and take action. RAIN RFID provides rich, real-time data and insights for a wide variety of applications, including inventory management, asset tracking, and supply chain optimization across many industry sectors. RAIN RFID is the fastest growing segment of the RFID market and, to date, has connected hundreds of billions of items, providing users the ability to: uniquely identify individual items beyond just their product type; identify and locate items without direct line-of-sight; identify many items quickly (up to 1,000 items per second); and read items within a range of between a few centimeters to several meters

RAIN RFID significantly enhances the resiliency and efficiency of America's supply chains, businesses, and government agencies. As described in the Executive Order on Resilient Supply Chains released in June 2024,[3] the United States needs resilient, diverse, and secure supply chains to ensure our economic prosperity, public health, and national security. Resilient supply chains include greater domestic production; a diverse and agile supplier base; a reliable transportation system; secure critical infrastructure; adequate stockpiles; reliable food systems; and a world-class, globally competitive American manufacturing base.

Use of the 860-930 MHz band by RAIN RFID systems is defined by a single global standard called GS1 UHF EPC Gen2, which was adopted by the International Standards Organization as ISO/IEC 18000-63. Use of this spectrum for RAIN RFID systems is harmonized across most major international markets, which is essential given their use in international trade and other connected industries. Both because of this international harmonization and due to the nature of the equipment itself, RAIN RFID systems cannot be retuned in order to operate in any other spectrum bands.

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[3] *See White House Council on Supply Chain Resilience*, Executive Order 14123 (June 14, 2024) (available at 89 Fed. Reg. 51949 (June 21, 2024)).

II. RAIN RFID SYSTEMS ARE UBIQUITOUS THROUGHOUT THE LOWER 900 MHz BAND AND THE UNITED STATES

More than 200 *billion* RAIN RFID tag chips have been shipped worldwide to date. Approximately 40% of these tags have been deployed in the United States. Thus, contrary to NextNav's claims, the Lower 900 MHz Band clearly is neither "underutilized" nor "largely underused in many parts of the country."[4] The data from the 80 billion RAIN RFID tags that have been deployed in the United States increase our nation's supply chain resiliency through digital transformation in a wide range of industries, including logistics, healthcare, pharmaceuticals, automotive, aviation, smart manufacturing, food safety, energy, smart cities, and more.

The manufacture and deployment of such a substantial number of RAIN RFID tag chips, as well as the public interest benefits arising from these deployments, likely would not have been possible *but for* the Commission's foresight nearly thirty years ago when it adopted the current band plan and technical and service rules for M-LMS operations in the Lower 900 MHz Band. Absent the "equitable balance between the needs of LMS service providers and those of the Part 15 users and manufacturers" struck by the Commission in 1995,[5] users and manufacturers of Part

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[4] *See* NextNav Petition at 17, 20.

[5] *Amendment of Part 90 of the Commission's Rules to Adopt Regulations for Automatic Vehicle Monitoring Systems*, Report and Order, 10 FCC Rcd 4695, 4708 (1995) ("*1995 LMS Order*").

15 devices would not have had the regulatory certainty stakeholders require in order to "invest in the equipment and facilities necessary to bring quality, low cost services to consumers."[6]

The Commission should not allow NextNav to upset this highly-successful and long-proven balance implemented for the Lower 900 MHz Band as part of a last-ditch effort to finally turn a profit on its M-LMS license holdings after decades of failing to satisfy its buildout obligations for these licenses, and regardless of the harms that its proposal would inflict upon other incumbent users of this band and the public interest more broadly. Rather, the Commission should again conclude that "creating such a broad messaging and data service would be an inappropriate use of this spectrum," and reiterate that it does "not intend to expand use of this band so that it becomes primarily a fixed, point-to-multipoint or point-to-point messaging service."[7]

Not only would implementation of NextNav's proposal cause significant public interest harms, but the alleged public interest benefits of NextNav's proposal appear to be, at best, vastly overblown. NextNav indicates that it intends to primarily rely on 3GPP's 5G standard for its proposed operations in the Lower 900 MHz Band.[8] 3GPP New Radio ("NR") Release 18 clarifies that the positioning work in 3GPP over NR addresses the major use case for NR positioning is Emergency call based on evaluations of E911 requirements for positioning accuracy (latitude, longitude, and altitude), network availability, reliability and latency, and furthermore synchronization requirements.[9] It therefore is unclear why similar positioning services cannot be deployed in spectrum bands with existing terrestrial flexible-use networks, especially since NextNav discusses the very limited bandwidth required for such positioning services.[10] In other words, the Commission's rules "make adequate provision elsewhere for this type of communications."[11]

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[6] *Id.* at 4696.

[7] *1995 LMS Order*, 10 FCC Rcd at 4709.

[8] *See* NextNav Petition at ii, 23.

[9] *See* 3GPP 5G NR Release 18 (August 2024) available at https://www.etsi.org/deliver/etsi_ts/138100_138199/13810101/18.06.00_60/ts_13810101v18060 0p.pdf).

III. A LARGE NUMBER OF DIFFERENT APPLICATIONS CURRENTLY USE RAIN RFID IN THE LOWER 900 MHz BAND

The following applications currently use RAIN RFID in the Lower 900 MHz Band:

Retail. Approximately 50% of RAIN RFID tags are deployed in retail, equating to over 40 billion tagged items in the U.S. alone to date. The retail industry accounted for approximately 6.3% of the United States' gross domestic product ("GDP") in the first quarter of 2024, and it is projected to grow at a compound annual growth rate ("CAGR") in excess of 19%. Retail deployments of RAIN RFID maximize profitability and minimize costs by: enabling real-time, accurate inventory and greater control over stock; increasing workforce productivity by streamlining the inventory process; enabling digital commerce business models; improving profitability by ensuring the sale of every item; accurately managing the supply chain; and detecting and preventing losses and waste. The significant harmful interference that NextNav's proposed operations would cause to RAIN RFID systems would result in: diminished inventory accuracy and supply chain management, which would increase both costs and inefficiencies; higher rates of waste, particularly in sectors like food and fashion; increased challenges in loss prevention and returns fraud; and difficulty in automating processes like checkout and payments, reducing customer satisfaction.

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[10] *See*, *e.g.*, Petition at 27 (stressing that, "*because 5G PRS uses only a small part of the 5G network's capacity, at least 95% of the spectrum capacity will be available for additional services*") (emphasis in original).

[11] *1995 LMS Order*, 10 FCC Rcd at 4709.

Logistics. In 2023, 3.4 billion RAIN RFID tag units were deployed globally in logistics, with this sector projected to grow at a CAGR of 32%. As of 2024, total U.S. business logistics costs are estimated to be $2.3 trillion, translating to about 8.7% of the national GDP. This sector includes transportation, warehousing, and inventory management, playing a critical role in supporting the economy by ensuring the efficient movement and storage of goods. The logistics industry's contribution to GDP underscores its crucial role in facilitating trade and commerce, thereby driving economic growth. The significant harmful interference that NextNav's proposed operations would cause to RAIN RFID systems would result in: decreased operational efficiency with increased manual labor requirements; higher rates of lost items and longer processing times; increased costs for businesses and a less resilient supply chain; and a loss of efficiency gains from automated scanning and tracking, such as United Parcel Service's "sensing" network.

Baggage Handling. The IATA Resolution 743 supports RAIN RFID tagging of baggage, driving increased tracking events using IATA RP1740c, even though it is not a mandate. Many airlines tie their RAIN RFID investments to their customer engagement and satisfaction objectives, enabling more customized travel experiences. The significant harmful interference that NextNav's proposed operations would cause to RAIN RFID systems would result in: increased instances of lost or delayed luggage; higher operational costs for airlines due to the need for manual tracking; and reduced customer satisfaction and potential brand damage.

Tire Tagging. The tire tagging industry is evolving to embedded RAIN RFID solutions to support a broader scope of applications, including circular economy and sustainability requirements. Key factors driving tire tagging efforts include enabling automatic proof of delivery, improving operational efficiencies, and facilitating the sorting of tires by age. The significant harmful interference that NextNav's proposed operations would cause to RAIN RFID systems would result in: less efficient tire tagging operations and reduced effectiveness in supporting sustainability; increased waste and operational costs; and decreased effectiveness of re-treading, resulting in lost resource savings (e.g., rubber, steel, CO2).

Healthcare. In the healthcare industry, RAIN RFID technology enables the tagging and tracking of a wide range of items, including beds, surgical instruments, drugs, patients, and mobile medical devices. This technology improves patient safety, manages surgical instruments, supports staff and patient workflows, automates replenishment and billing, authenticates quality and sterilization processes, and manages medical equipment location. The significant harmful interference that NextNav's proposed operations would cause to RAIN RFID systems would result in: challenges in maintaining inventory accuracy and managing equipment efficiently; increased costs and higher rates of medical errors; less effective management of healthcare resources and potential harm to patient safety; and a significant loss of operational efficiency, such as in managing anesthesia medication with RFID tags.

Maritime Trade and Supply Chains. U.S. ports handle a substantial portion of the country's trade, with coastal ports managing goods worth about $1.5 trillion annually, accounting for roughly 40% of total U.S. trade by value. A 1% impact on RFID operations in ports could result in a cost of $15 billion. The GAO report discusses the adoption of automation technologies in U.S. ports, including RFID, and their varied effects on operations, security, emissions, and workforce.[12] The significant harmful interference that NextNav's proposed operations would cause to RAIN RFID systems would result in: challenges in maintaining security and operational efficiency at ports; increased risks of unauthorized access and inefficiencies in processing cargo; higher emissions due to longer truck idling times; and increased labor costs due to the need for more manual processes.

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[12] *See Port Infrastructure: U.S. Ports Have Adopted Some Automation Technologies and Report Varied Effects*, U.S. Government Accountability Office, GAO-24-106498 (Mar. 2024).

Aerospace and Defense. RFID technology is increasingly used in the aerospace and defense sectors for asset tracking, inventory management, and maintenance of critical equipment.[13] It helps improve the efficiency and accuracy of parts tracking, ensuring compliance with stringent regulations and safety standards. The significant harmful interference that NextNav's proposed operations would cause to RAIN RFID systems would result in: decreased efficiency in tracking and managing high-value assets; increased risks of non-compliance with regulatory requirements; potential delays in maintenance schedules, leading to operational inefficiencies; and increased manual labor and associated costs for inventory management.

Agriculture and Livestock. RFID is used to track livestock, monitor crop conditions, and manage agricultural equipment. This technology enhances traceability in the food supply chain, improves inventory management, and ensures compliance with regulations like the Food Safety Modernization Act. The significant harmful interference that NextNav's proposed operations would cause to RAIN RFID systems would result in: reduced traceability of food products, leading to challenges in managing food safety and quality; increased risk of disease spread due to less effective livestock tracking; higher costs and inefficiencies in managing agricultural resources and equipment; and difficulty in meeting regulatory compliance requirements.

Manufacturing. RFID technology is widely used in manufacturing for tracking work-in-progress (WIP), managing inventory, and ensuring the accuracy of production processes. It plays a crucial role in just-in-time (JIT) manufacturing and lean manufacturing initiatives. The significant harmful interference that NextNav's proposed operations would cause to RAIN RFID systems would result in: disruptions in manufacturing processes due to inefficient tracking of WIP and inventory; increased production errors and waste, leading to higher operational costs; difficulty in maintaining JIT manufacturing, resulting in excess inventory or stockouts; and reduced ability to optimize production schedules and resource allocation.

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[13] *See* Claire Swedberg, *UHF RFID Serves DoD with Inventory Accuracy*, RFID Journal (Sept. 4, 2025) (available at www.rfidjournal.com/news/uhf-rfid-serves-dod-with-inventory-accuracy/221619/).

IV. SIGNIFICANT HARMFUL INTERFERENCE WOULD OCCUR BETWEEN RAIN RFID SYSTEMS AND NEXTNAV'S PROPOSED OPERATIONS ABSENT SUBSTANTIAL SEPARATION DISTANCES THAT WOULD BE IMPOSSIBLE TO MAINTAIN

Based on the information provided by NextNav to date,[14] the RFID Commenters performed a technical analysis of the harmful interference that would be created if devices operating in accordance with the technical rules proposed by NextNav were introduced into the Lower 900 MHz Band. As discussed in more detail below, the introduction of these high-powered devices into the Lower 900 MHz Band likely would severely disrupt, if not force the termination of, the operations of RAIN RFID systems across the United States, and thus, negatively impact of the scores of commercial, governmental, and other users who rely heavily on these systems for their day-to-day operations.

Interference Into RAIN RFID. As shown in Figure 1 below, absent an obstructed (e.g., dense buildings) separation distance of more than 11 kilometers, RAIN Readers are likely to experience harmful interference from a NextNav base station operating pursuant to the rules proposed in the Petition. Given NextNav's focus on densely-populated areas, maintaining a separation distance of this size between RAIN Readers and NextNav's base stations would be all but impossible.

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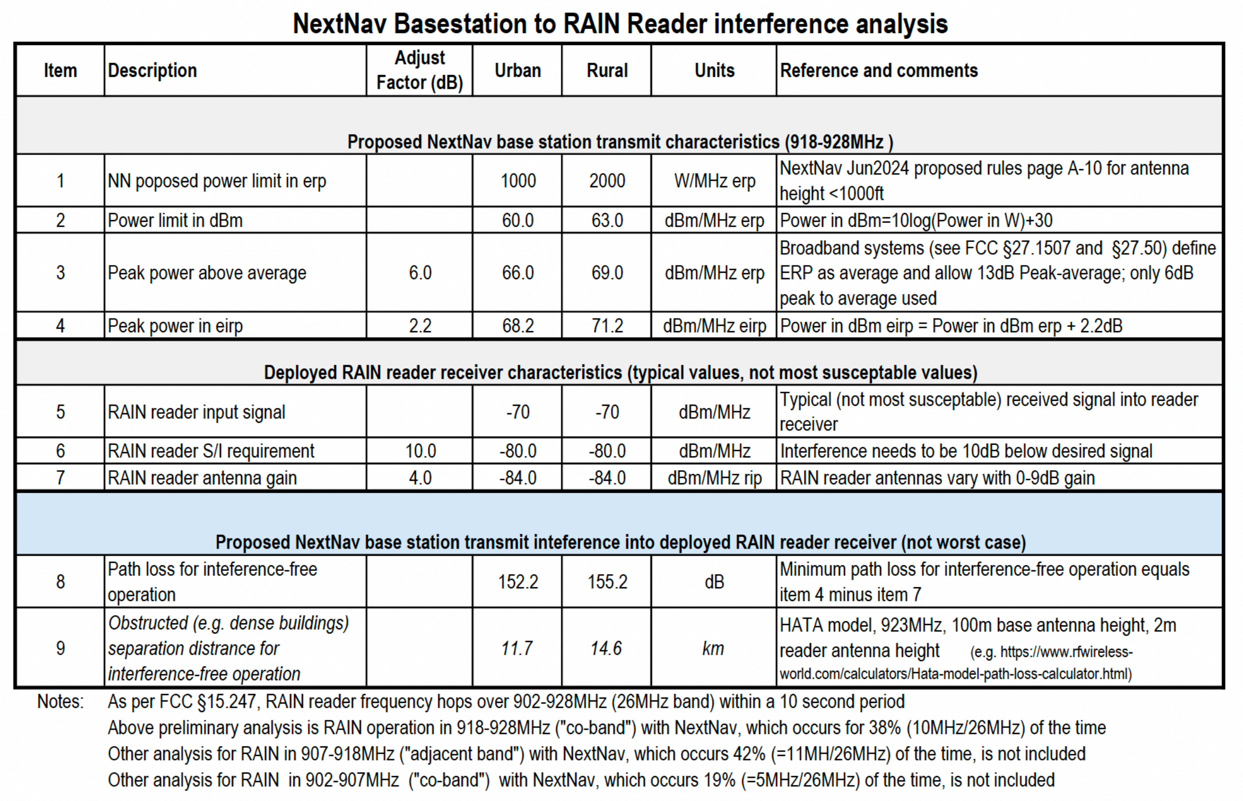
[14] *See*, *e.g.*, NetxtNav Petition at 28, n. 89.



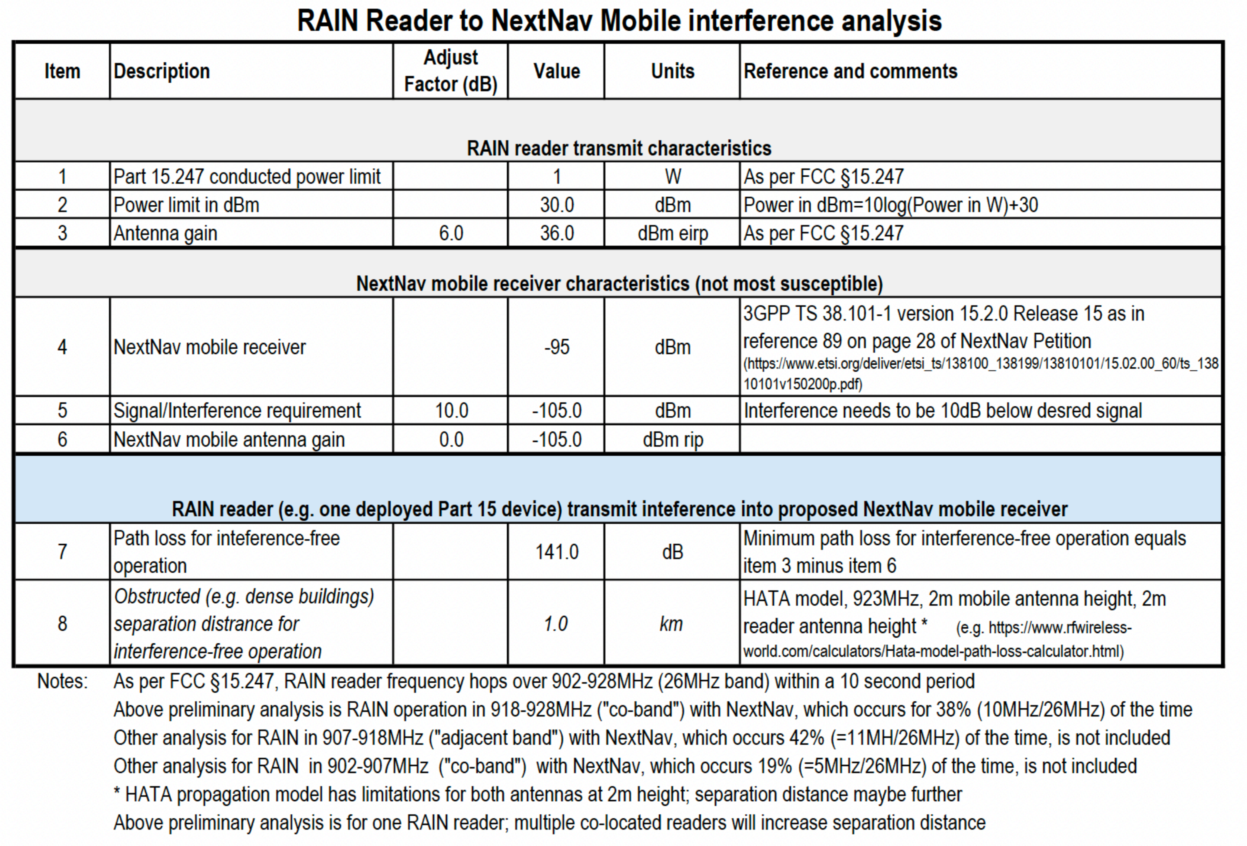
NextNav Basestation to RAIN Reader interference analysis

Item	Description	Adjust Factor (dB)	Urban	Rural	Units	Reference and comments
Proposed NextNav base station transmit characteristics (918-928MHz)						
1	NN poposed power limit in erp		1000	2000	W/MHz erp	NextNav Jun2024 proposed rules page A-10 for antenna height <1000ft
2	Power limit in dBm		60.0	63.0	dBm/MHz erp	Power in dBm=10log(Power in W)+30
3	Peak power above average	6.0	66.0	69.0	dBm/MHz erp	Broadband systems (see FCC §27.1507 and §27.50) define ERP as average and allow 13dB Peak-average; only 6dB peak to average used
4	Peak power in eirp	2.2	68.2	71.2	dBm/MHz eirp	Power in dBm eirp = Power in dBm erp + 2.2dB
Deployed RAIN reader receiver characteristics (typical values, not most susceptable values)						
5	RAIN reader input signal		-70	-70	dBm/MHz	Typical (not most susceptable) received signal into reader receiver
6	RAIN reader S/I requirement	10.0	-80.0	-80.0	dBm/MHz	Interference needs to be 10dB below desired signal
7	RAIN reader antenna gain	4.0	-84.0	-84.0	dBm/MHz rip	RAIN reader antennas vary with 0-9dB gain
Proposed NextNav base station transmit inteference into deployed RAIN reader receiver (not worst case)						
8	Path loss for inteference-free operation		152.2	155.2	dB	Minimum path loss for interference-free operation equals item 4 minus item 7
9	*Obstructed (e.g. dense buildings) separation distrance for interference-free operation*		*11.7*	*14.6*	*km*	HATA model, 923MHz, 100m base antenna height, 2m reader antenna height (e.g. https://www.rfwireless-world.com/calculators/Hata-model-path-loss-calculator.html)

Notes: As per FCC §15.247, RAIN reader frequency hops over 902-928MHz (26MHz band) within a 10 second period
Above preliminary analysis is RAIN operation in 918-928MHz ("co-band") with NextNav, which occurs for 38% (10MHz/26MHz) of the time
Other analysis for RAIN in 907-918MHz ("adjacent band") with NextNav, which occurs 42% (=11MH/26MHz) of the time, is not included
Other analysis for RAIN in 902-907MHz ("co-band") with NextNav, which occurs 19% (=5MHz/26MHz) of the time, is not included

Figure 1: Interference into Part 15 RAIN RFID

Interference Into NextNav's Proposed Operations. As shown in Figure 2 below, absent an obstructed (e.g., dense buildings) separation distance of more than 1 kilometer, NextNav mobiles operating pursuant to the rules proposed in the Petition are likely to experience harmful interference from RAIN Readers. Given that users often would have their mobile devices with them when they enter premises with RAIN RFID installations, maintaining a separation distance of this size between RAIN Readers and NextNav's mobile devices would be all but impossible.



RAIN Reader to NextNav Mobile interference analysis

Item	Description	Adjust Factor (dB)	Value	Units	Reference and comments
RAIN reader transmit characteristics					
1	Part 15.247 conducted power limit		1	W	As per FCC §15.247
2	Power limit in dBm		30.0	dBm	Power in dBm=10log(Power in W)+30
3	Antenna gain	6.0	36.0	dBm eirp	As per FCC §15.247
NextNav mobile receiver characteristics (not most susceptible)					
4	NextNav mobile receiver		-95	dBm	3GPP TS 38.101-1 version 15.2.0 Release 15 as in reference 89 on page 28 of NextNav Petition (https://www.etsi.org/deliver/etsi_ts/138100_138199/13810101/15.02.00_60/ts_13810101v150200p.pdf)
5	Signal/Interference requirement	10.0	-105.0	dBm	Interference needs to be 10dB below desred signal
6	NextNav mobile antenna gain	0.0	-105.0	dBm rip	
RAIN reader (e.g. one deployed Part 15 device) transmit inteference into proposed NextNav mobile receiver					
7	Path loss for inteference-free operation		141.0	dB	Minimum path loss for interference-free operation equals item 3 minus item 6
8	*Obstructed (e.g. dense buildings) separation distrance for interference-free operation*		*1.0*	*km*	HATA model, 923MHz, 2m mobile antenna height, 2m reader antenna height * (e.g. https://www.rfwireless-world.com/calculators/Hata-model-path-loss-calculator.html)

Notes: As per FCC §15.247, RAIN reader frequency hops over 902-928MHz (26MHz band) within a 10 second period
Above preliminary analysis is RAIN operation in 918-928MHz ("co-band") with NextNav, which occurs for 38% (10MHz/26MHz) of the time
Other analysis for RAIN in 907-918MHz ("adjacent band") with NextNav, which occurs 42% (=11MH/26MHz) of the time, is not included
Other analysis for RAIN in 902-907MHz ("co-band") with NextNav, which occurs 19% (=5MHz/26MHz) of the time, is not included
* HATA propagation model has limitations for both antennas at 2m height; separation distance maybe further
Above preliminary analysis is for one RAIN reader; multiple co-located readers will increase separation distance

Figure 2: Interference into NextNav

NextNav falsely implies that unlicensed Part 15 operations in the Lower 900 MHz Band have absolutely no interference rights vis-à-vis M-LMS operations in the band. Rather, in order to address the concerns of Part 15 users in the band, the Commission created a special "safe harbor" which protects Part 15 users from interference complaints so long as they are operating within certain parameters. The Commission also implemented a testing requirement for M-LMS licensees. Despite its statements to the contrary, NextNav clearly is aware of these unique protections afforded to Part 15 users in the Lower 900 MHz Band because it has requested the removal of such protections. This of course is of particular concern for RAIN RFID users because the interference caused by RAIN RFID systems to NextNav's mobile devices could result in the mandatory shutdown of the RAIN RFID systems involved, as well as remove entirely the regulatory certainty that has allowed RAIN RFID operations to continue to thrive in the Lower 900 MHz Band despite the Commission's introduction of LMS operations in this band nearly thirty years ago.

V. ADOPTION OF NEXTNAV'S PROPOSAL WOULD VIOLATE SECTION 309 OF THE COMMUNICATIONS ACT

Despite NextNav's claims to the contrary,[15] the adoption of its proposal would violate the Commission's statutory duties under Section 309 of the Communications Act. For instance, where interested parties have filed mutually exclusive applications, Section 309(j)(1) requires the Commission to "grant the license or permit to a qualified applicant *through a system of competitive bidding*…"[16] In recognition of this requirement, NextNav proposes for the Commission to disallow the filing of any mutually exclusive applications, and instead simply grant NextNav new licenses for the Lower 900 MHz Band – licenses that would provide NextNav with additional bandwidth spanning a modified frequency range; greatly expand the geographic reach of NextNav's spectrum holdings in the band; and significantly increase NextNav's rights to this spectrum, both with respect to the services it could offer and the interference protections it would enjoy.

Such an approach, however, still would run afoul of Section 309. For instance, in *Aeronautical Radio, Inc. v. FCC*, the D.C. Circuit Court of Appeals found that the Commission had, at best, acted "only at the periphery of its authority in adopting a rule which eliminate[d] mutual exclusivity through the simple expedient of prohibiting license applicants from pursuing their individual applications…"[17]

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[15] *See* NextNav Petition at 32 (claiming that the Commission "has broad authority to issue a nationwide M-LMS license without relying on an auction…").

[16] 47 U.S.C. §309(j)(1) (emphasis added).

[17] 928 F.2d 428, 452 (D.C. Cir. 1991).

Although NextNav contends that Commission precedent "supports the agency's authority to use various means to avoid mutual exclusivity,"[18] the proceedings discussed by NextNav are easily distinguishable from the situation here. For instance, NextNav references the AWS-4 (2000-2020 MHz and 2180-2200 MHz bands) proceeding,[19] in which the Commission concluded that competitive bidding was not required when it granted DISH, the existing MSS licensee in these bands, the authority for "full-flexible use under the Part 27 AWS rules…"[20]

As the Commission explained, however, given that "the terms of DISH's 2 GHz licenses allowed it to provide terrestrial service in the 2000-2020 MHz and 2180-2200 MHz bands" even prior to the grant of this authority, the Commission was not issuing "initial licenses," but rather was "modif[ying] the ATC authority under the existing MSS licenses so as to be governed by the new AWS-4 band rules."[21] In contrast, NextNav's proposed reconfiguration of the Lower 900 MHz Band clearly would be subject to the requirements of Section 309(j) because it would authorize operations for the first time "under a new licensing scheme, that is, one involving a different set of rights and obligations for the licensee."[22]

NextNav also references the *Nextel Swap Order*, in which the Commission decided to reconfigure the 800 MHz band to remedy the ongoing interference to public safety operations in that spectrum, a process that required Nextel to relinquish its spectrum rights in the 800 MHz band in exchange for rights to 10 megahertz of spectrum in the 1.9 GHz band.[23] As part of the spectrum exchange, Nextel also was responsible for the costs related to reconfiguring the 800 MHz band and clearing the 1.9 GHz band.[24]

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[18] *See* NextNav Petition at 33.

[19] *See id.* at 36.

[20] *Service Rules for Advanced Wireless Services in the 2000-2020 MHz and 2180-2200 MHz Bands*, Order on Reconsideration, WT Docket No. 12-70, FCC 18-121, ¶ 16 (rel. Aug. 16, 2018).

[21] *Id.*

[22] *Fresno Mobile Radio, Inc. v. FCC*, 165 F.3d 965, 970 (D.C. Cir. 1999).

[23] *Improving Public Safety Communications in the 800 MHz Band*, Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order, and Order, 19 FCC Rcd 14969, 14973-75 (2004).

In that proceeding, the Commission concluded that the 1.9 GHz band license granted to Nextel in the spectrum exchange could not be "considered an 'initial license' subject to auction under Section 309(j)" because the spectrum rights Nextel would gain in the 1.9 GHz band would not "differ significantly enough – in terms of rights and responsibilities – from Nextel's existing authorizations so as to warrant treatment as the issuance of an initial license rather than as a modification of license."[25] In stark contrast, in addition to asking the Commission to increase its per-market bandwidth from 14 MHz to 15 MHz and to grant it nationwide license even though it currently holds only approximately 64% of the M-LMS B- and C-block licenses, NextNav wants the Commission to allow it to provide any of a range of services at power levels far higher than currently authorized for M-LMS operations in this band. NextNav also wants to free itself of the interference limitations that have allowed successful Part 15 operations in the Lower 900 MHz Band despite the Commission's introduction of LMS operations into this spectrum nearly thirty years ago. For any and all of these reasons, the new licenses sought by NextNav clearly would "differ significantly enough – in terms of rights and responsibilities – from [its] existing authorizations so as to warrant treatment as the issuance of an initial license rather than as a modification of license."

Further, and importantly, despite Nextel's obligations to both relinquish its 800 MHz licenses and assume responsibility for the reconfiguration and clearing costs, the Commission also required that Nextel agree to make a payment to the Treasury equal to the amount, if any, that the value of the spectrum rights it received for the 1.9 GHz band exceeded the value of the spectrum rights it relinquished in the 800 MHz band and the costs Nextel incurred to reconfigure the 800 MHz band, clear the 1.9 GHz, and transition its operations to the 1.9 GHz band.[26] As the Commission explained, conditioning the spectrum exchange on this "value for value basis" was necessary to ensure that "Nextel, other licensees and the public [were] treated equitably, and that Nextel [did] *not realize any windfall gain*…"[27]

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[24] *See id.* at 14975.

[25] *Id.* at 15015, n. 236.

Notably, if the Commission were to adopt NextNav's proposal, NextNav undoubtedly would realize a substantial financial windfall. In fact, even if NextNav were not asking for the spectrum rights to greater bandwidth and substantially more geography, NextNav's proposed revisions to the service and technical rules that govern its operations in the Lower 900 MHz Band would increase the value of its license holdings in this band exponentially. A comparison of the per MHz-pop prices of the M-LMS licenses acquired by NextNav to the per MHz-pop price of other auctioned off licenses subject to service and technical rules that are materially identical to those proposed by NextNav is an appropriate metric to gauge the true extent of the windfall sought by NextNav.

As an example, in Auction 21, NextNav acquired M-LMS licenses for both the B and C blocks in the New York Economic Area ("EA") with gross bids equal to $0.0008 and $0.0011 per MHz-pop, respectively. In contrast, in Auction 97 (AWS-3 band), paired licenses for the New York EA sold for an average of $4.8777 per MHz-pop; in the Broadcast Incentive Auction (600 MHz band), the final clock price for licenses in the New York Partial Economic Area ("PEA") was equal to $1.89 per MHz-pop; in Auction 107 (3.7-3.98 GHz band), the final clock price for licenses in the New York PEA was equal to $1.0204 per MHz-pop; and in Auction 110 (3.45-3.55 GHz band), the final clock price for licenses in the New York PEA was equal to $0.9279 per MHz-pop. In other words, on a per MHz-pop basis, NextNav acquired its M-LMS licenses in the New York market for between 0.023% and 0.12% of the price bidders paid in these other auctions for licenses in the New York market that are materially identical to the new licenses NextNav now asks the Commission to grant it free of charge.

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[26] *Id.*

[27] *Id.* (emphasis added).

VI. CONCLUSION

RAIN RFID is providing important benefits for the US society that would be significantly impacted by NextNav's proposal. The NextNav proposal risks significant harmful interference and disruption to RAIN RFID systems, as well as hundreds of millions of other users of the Lower 900 MHz band. RAIN Alliance respectfully requests that the Commission deny the petition.

Respectfully submitted,

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